

REMARKS/ARGUMENTS

Applicants greatly appreciate the courtesy that the Examiner extended to applicants' representative during the telephone interviews held on December 11, 2008. The discussion during the telephone interview has been taken into consideration herein.

Status of the Claims

Claims 12 to 33 are pending in this application with claim 12 being the only independent claim. Claims 1-11 have been previously cancelled without prejudice or disclaimer. Independent claim 12 has been amended to recite that "each of said channels extending transversely to the stack axis" as is shown in Fig. 1 and disclosed on page 7, lines 20-21 of the specification as filed. Claim 23 has been amended in light of the amendments to claim 12 without narrowing the scope of the claim or any elements contained in the claim.

Reconsideration of the subject application in view of the above amendments and the following remarks is hereby respectfully requested.

Overview of the Office Action

Claims 19 and 25 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 12-17, 20, 23, and 28-33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,066,408 (*Vitale*).

Claims 19 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Vitale* in view of U.S. Published Application No. 2003/0012986 (*Koschany*).¹

Claims 19 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Vitale* in view of U.S. Patent No. 5,972,530 (*Shelekhin*).

¹ This rejection is believed to be intended for claims 18, 22, 24, and 26 but inadvertently applied to claims 19 and 25.

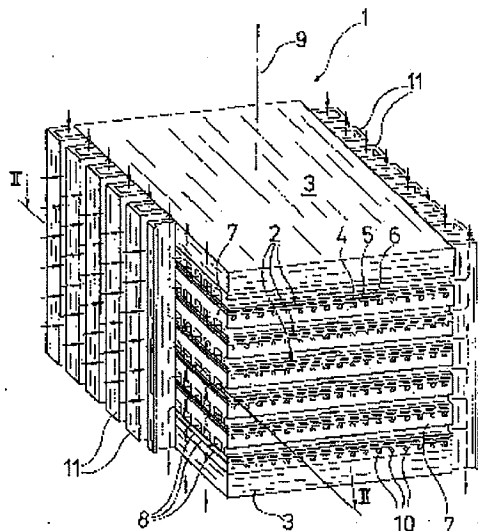
Claims 19 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Vitale* in view of U.S. Patent No. 6,689,500 (*Nelson*).²

Response to Formality Rejection

In response to the 35 U.S.C. § 112 rejection of claims 19 and 25, applicants submit that independent claim 12 provides adequate antecedent basis for the term "open ends" (*see*, claim 12, line 6). Accordingly, the above rejection of claims 19 and 25 is moot.

Summary of the Subject Matter Disclosed in the Specification

The following descriptive details are based on the specification. They are provided only for the convenience of the Examiner as part of the discussion presented herein, and are not intended to argue limitations which are unclaimed.



The present specification discloses a fuel cell stack 1 having plural fuel cells 2 arranged above one another and clamped between end plates 3. Each fuel cell 2 has a membrane electrode assembly formed by a polymer electrolyte membrane 4, and an anode 5 and cathode 6 on the opposite sides of the membrane 4. *See* Fig. 1 reproduced above for the Examiner's convenience.

² This rejection is believed to be intended for claims 21 and 27 but inadvertently applied to claims 19 and 25.

A bipolar plate 7 is arranged between adjacent membrane electrode assemblies 4, 5, 6 and formed with parallel channels 8. The parallel channels 8 are open towards both ends and extend transversely to the stack axis 9 and to the longitudinal channels 10 which supply fuel to the fuel cells 2. The transverse channels 8 supply oxygen to the fuel cells 2 and remove heat for purpose of cooling. The routing of the air within a fuel cell 2 runs in opposite directions in adjacent transverse channels 8 in each fuel cell 2.

Collector channels 11 are provided to connect the outflow sides of the ends of the transverse channels 8 of all fuel cells 2. A current flowing in opposite directions through adjacent channels 8 of the same fuel cell 2 can be created within the channels 8 via the collecting channels 11 when the flow is fed into the fuel cell stack 1 from both sides (*see*, also Fig. 2), resulting in a homogeneous temperature distribution with the fuel cell 2 or the stack 1.

Patentability of the Claimed Invention

Independent Claim 12

Independent claim 12 recites “channels extending transversely to the stack axis.” The above recited claim features are not disclosed by *Vitale* because the coolant water inlet and outlet manifolds 264, 268 (which are interpreted as the claimed channels in the Office Action) are parallel to the axis of *Vitale*’s fuel cell stack based on the detailed reasoning below.

In the “Response to Arguments” Section, the Office Action interprets the coolant channels (264, 268) in *Vitale* as the channels recited in independent claim 12 (*see*, page 8 of the Office Action). Without admitting or disputing the above interpretation made in the Office Action, applicants submit that both the inlet manifold 264 and the outlet manifold 268 in *Vitale* extends perpendicularly to the fuel cell plate 216 (*see*, e.g., Fig. 2C). In other words, the inlet and outlet manifolds 264, 268 in *Vitale* are parallel to the stack axis, rather than “extending transversely to the stack axis” as recited in independent claim 12.

In view of the above, *Vitale* does not read on the claimed invention. Withdrawal of the claim rejection of independent claim 12 is hereby respectfully requested.

Dependent Claims 13 to 33

Claims 13 to 33 depend, directly or indirectly, from allowable independent claim 12. *Koschany*, *Shelekhin*, and *Nelson* are cited in the Office Action against the additional features in claims 18-19, 21-22, and 24-27 but do not remedy the deficiencies of *Vitale*. Therefore, claims 13 to 33 are each allowable for at least the same reasons that independent claim 12 is allowable.

In addition, dependent claims 13 to 33 include features which serve to even more clearly distinguish the claimed invention over the applied prior art.

Conclusion

Based on all of the above, it is respectfully submitted that the present application is now in proper condition for allowance. Prompt and favorable action to this effect and early passing of this application to issue are respectfully solicited.

No fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our PTO Deposit Account No. 03-2412.

Respectfully submitted,
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